

Missouri Resources

Spring 2019 • Volume 36 • Number 2





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ABOVE
Wild ginger and ferns beckon warmer times and herald the arrival of spring at Boone’s Lick State Historic Site in Howard County.
MoDNR PHOTO BY BEN NICKELSON

ON THE FRONT COVER
Smooth spiderwort makes an early spring appearance at Hawn State Park, near Ste. Genevieve.
MoDNR PHOTO BY BEN NICKELSON

ON THE BACK COVER
Three of the 2018 Missouri DNR Photo Contest category winners are featured as we kick off the 2019 competition.

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CONNECT WITH MISSOURI STATE PARKS



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MoDNR PHOTO BY BEN NICKELSON

CAPITOL RENOVATION PROJECT ENLISTS HISTORIC MISSOURI QUARRY

by Joe Gillman



As the Missouri State Capitol lay in ruin following a devastating fire in early 1911, voters approved a bond issue that authorized a new Capitol in Jefferson City. The first State Capitol Commission Board was established and quickly began planning efforts. One such task was the selection of a building stone to be utilized in the construction of a new seat of government. That stone, characterized by a uniform blue-gray color, and having little variation in mineralogy and texture, was later known as “Carthage Marble.” To meet the need for this building material, a new quarry was opened along the Spring River at Carthage and the first stone was shipped to Jefferson City in October 1914.

Fast forward 100 years. Exposure to the elements had taken its toll on the capitol’s exterior and the façade needed maintenance, repair and cleaning. While stone is naturally very durable, some pieces needed to be replaced. During the 2014 legislative session, the general assembly appropriated funding for the State Capitol Project with the intent of extending the life of the building.



(Above) This large block of limestone has been completely slabbed at Phenix Quarry and is awaiting the final cut that will create individual pieces.

PHENIX MARBLE COMPANY PHOTO

(Above) An early winter snowstorm blanketed the scaffolding stage of work at the Missouri Capitol Renovation Project in Jefferson City. Soon the entire capitol building was covered with plastic in preparation of cold-weather repairs on the historic structure.

(Inset) Ceres, the Roman Goddess of Agriculture, was removed for the first time since she was placed atop the Capitol dome in 1924. The bronze, 94-year-old 1-ton statue was last cleaned in 1995, but that time she remained in place, 260 feet above the Missouri State Capitol grounds.

MoDNR PHOTOS BY BEN NICKELSON



(Left) An industrial rock saw is employed by Phenix Marble Co. to cut the large blocks of limestone required for the Missouri Capitol Renovation Project, scheduled to be completed in 2020.

PHENIX MARBLE COMPANY PHOTO

(Right) Cut and shaped stone is ready for transport from Gary Galassi Stone & Steel to the Missouri State Capitol. The firm is based in Romeoville, Ill.

GARY GALASSI STONE & STEEL PHOTO





“STONE FOR THE PROJECT IS BEING QUARRIED FROM THE SAME LOCATION AS THE ORIGINAL 1888 QUARRY, AND WILL BE CUT AND PREPARED FOR SHIPMENT TO JEFFERSON CITY.”

– Chris Upp, Phenix Marble Co.



(Top, inset) An interior close-up view of an ornately carved column top, circa 1913-1917.

MISSOURI STATE ARCHIVES PHOTO

(Above) This is a view of the construction progress on Oct. 1, 1916. An elaborate system of cranes and pulleys works in concert with scaffolding to continue progress on the dome. The columns are complete as work proceeds on the portico roof.

MISSOURI STATE CAPITOL COMMISSION, MISSOURI STATE ARCHIVES



Carthage Marble was no longer being produced; therefore, the Missouri State Capitol Commission began work to identify stone that would be suitable for the project. Enter Phenix Marble Company. The Phenix quarry, located near Ash Grove, was first opened in 1888 and since that time has intermittently produced high-quality cut stone and marble for a variety of uses. In fact, much of the interior of the state capitol is constructed with polished Phenix Marble that displays a variety of well-preserved fossils. However, stone from Carthage and Phenix are not identical. They come from two rock units that are not age-equivalent and their respective quarry locations are separated by nearly 60 miles. Because the two stone types have remarkably similar characteristics and exhibit only slight variation in color, it can be difficult to distinguish between the two. In spring of 2018, the commission selected stone from Phenix to be used in the renovation project.

“We are honored to be a partner in this historic project,” said Chris Upp, Vice-President and General Manager of Phenix Marble Co. “Stone for the project is being quarried from the same location as the original 1888 quarry, and will be cut and prepared for shipment to Jefferson City.”

The project is planned for completion in 2020, and thanks in part to Missouri’s natural resources, Missouri’s magnificent capitol will be ready for the next century.

Learn more about limestone at dnr.mo.gov/geology/geosrv/imac/limestone.htm. Check out capitol construction progress at capitol.mo.gov/webcam-capitol-construction.

Joe Gillman is state geologist and director of the Missouri Geological Survey, a division of the Missouri Department of Natural Resources.

(Left) Phenix Quarry, located near Ash Grove in Greene County, was first opened in 1888. It has intermittently produced high-quality cut stone and marble for a variety of uses. Stone from Phenix was selected to be used in the Missouri Capitol renovation project.

MODNR PHOTO BY JUSTIN DAVIS



(Above) Gary Galassi Stone & Steel artisans prepare a custom limestone unit to exact specifications.

GARY GALASSI STONE & STEEL PHOTO

(Below) Ornate carvings, as well as all of the limestone used in the Capitol Renovation Project, are being prepared by specialists with Galassi Stone & Steel.

GARY GALASSI STONE & STEEL PHOTO



An industrial belt saw is used by Phenix Quarry to slab a large block of limestone into individual units.

PHENIX MARBLE COMPANY PHOTO

HEAVY METAL HISTORY

Lead in Old Plumbing Requires Ongoing Water Monitoring

by Brian Quinn

For more than 5,000 years, lead has been prized by cultures worldwide. The heavy, blue-gray metal has been used in everything from makeup and pottery to medicine and even food, and it still is vitally important today. Of course, lead has long been key to Missouri's own growth and development.

But it was lead's almost universal use in plumbing materials combined with ongoing exposure concerns that keeps lead on the Missouri Department of Natural Resources' radar. That's why we work with our local, state and federal partners to ensure that Missourians are safe from lead that can occasionally show up in our water.

Ensuring Safe Drinking Water

High levels of naturally occurring lead typically are not found in surface and underground sources tapped by public water systems. Instead, the concern is with old lead-containing pipes, solder and fixtures that can leach lead into the water through corrosion. Though manufacturers must now produce certified lead-free products, many public water systems still have homes with lead solder and fixtures that contain lead. In addition, homes constructed before the 1950s may have lead service lines.

To help protect consumers, under the authority of EPA's Lead and Copper Rule, the Department ensures that public water systems statewide adhere to the federal action level for lead. If monitoring shows lead content is above the action level, the system must increase testing and inform customers. If the lead content remains above the action level, further actions must be taken to regain safe levels.

(Below, left to right) At Missouri Department of Natural Resources' pesticide pick-up events, citizens sometimes bring old cans of paint that have been stored for years on their premises. Old paint often includes lead used during the manufacturing process. Cans are combined and then properly disposed. Unborn babies and children up to six years of age are particularly susceptible to the health risks of lead contamination. Water from lead-contaminated drinking water sources are often traced back to lead pipes or pipes containing some lead, plumbing fixtures and older lead solder. All can combine to raise lead levels in water from those systems to higher than acceptable levels. Old outside water lines and systems often used underground pipes that contained lead that can leach into the water. It is best to flush those lines for a few minutes when they are used as a drinking water source.

Health Issues

Unborn babies and children up to six years old are at greatest risk from lead poisoning, which can cause a range of serious health problems. However, lead poisoning commonly is caused by exposure to multiple sources, such as lead-based paint or contaminated air, household dust and even food. While lead can leach into water from old plumbing, Missouri's public drinking water systems consistently provide drinking water well below federal maximum standards.

For more information on lead poisoning, contact the Missouri Department of Health and Senior Services by calling 573-751-6102 or toll-free at 866-628-989, or online at health.mo.gov.

For more information on lead in drinking water, call the Missouri Department of Natural Resources at 800-361-4827 or 573-751-5331 or online at dnr.mo.gov/DWW/.

Brian Quinn is the division information officer for the Department's Division of Environmental Quality.



MoDNR PHOTO BY ANDREW RICHMOND

Protect the Water in Your Residence.

Here's a short video on keeping household water lead-safe, courtesy of the American Water Works Association.



MoDNR FILE PHOTO



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MoDNR FILE PHOTO



Fry's Lyon Foundation sponsors 2019 Civil War Passport Program

by Renee Bungart

Martin Luther King, Jr. once said, "We are not makers of history. We are made by history." Armed with a fierce desire for freedom and equality, an organized group of African-Americans took up arms and defined history almost 100 years before King uttered those words. A small skirmish remembered not for the number of lives lost, rather the 1862 Battle of Island Mound marked the first time black soldiers fought in battle alongside white soldiers during the Civil War. The soldiers were members of the First Kansas Colored Volunteer Infantry. Their bravery eventually helped lead the way for African-Americans to join the U.S. Army.

There is always something new to learn about history and the more than 1,000 battles that were fought in Missouri during the Civil War. As an opportunity to encourage these learning experiences, Missouri State Parks is partnering with Fry's Lyon Foundation to host a Missouri Civil War Passport program. The program will begin April 1 and end Dec. 31, 2020. Participants may travel to 39 historically significant conflict sites across Missouri where Civil War battles occurred.

The Fry's Lyon Foundation chose the sites included in the Missouri Civil War Passport based on their inclusion in the federally created Civil War Sites Advisory Commission's list of historically significant conflict sites, 29 of which are in Missouri. The Fry's Lyon Foundation also included 10 additional Missouri conflict sites they considered important.

Missouri State Parks has eight sites included in the passport program, including the Battle of Island Mound State Historic Site. Exhibits at the site preserve the site of Toothman Farm, renamed as "Fort Africa," and interpret the battle and its significance in the history of the state, the nation and the Civil War.

(Top left) The Battle of Island Mound, which took place in Bates County in 1862, marked the first time black soldiers fought beside white soldiers in the Civil War.

MoDNR PHOTO BY ANDREW RICHMOND

(Left, far left) Battle of Pilot Knob State Historic Site periodically hosts a reenactment of the historic battle where approximately 1,500 Union soldiers held off an 8,000-strong assault from the Confederacy.

MoDNR PHOTOS BY BEN NICKELSON



Missouri State Parks will sell the Missouri Civil War Passports at retail sites for \$10, all 39 passports sites or online at mostateparks.com. Once purchased, participants will stamp their passports at participating historic sites and other locations.

We hope you will join Missouri State Parks and take this opportunity to explore Missouri’s outstanding cultural landmarks during the passport program, and better understand, appreciate and learn about our rich history.

Renee Bungart is deputy communications director for the Missouri Department of Natural Resources.



Union reenactors at the Battle of Pilot Knob State Historic Site form a line and hold off advancing Confederate raiders.

MoDNR PHOTO BY ANDREW RICHMOND

(Far left) Battle of Pilot Knob State Historic Site hosts a trail where guests can walk through the former site of Fort Davidson, which was purposefully blown up by Union Gen. Thomas Ewing’s men as they retreated under the cover of night.

MoDNR PHOTO BY BEN NICKELSON

(Left) Battle of Island Mound State Historic Site preserves the site of the Toothman Farm, which became known as “Fort Africa” while occupied by the First Kansas Colored Volunteer Infantry.

(Below) Guerrillas look across tallgrass prairie as they reenact the Battle of Island Mound.

MoDNR PHOTOS BY ANDREW RICHMOND

Missouri State Park Site Locations Participating in the Missouri Civil War Passport Program:



Battle of Athens State Historic Site



Battle of Carthage State Historic Site

(Stamp location: Battle of Carthage Civil War Museum)



Hunter Dawson State Historic Site



Battle of Island Mound State Historic Site

(Stamp location: Bates County Historical Society and Museum)



Battle of Lexington State Historic Site



Missouri State Museum



Battle of Pilot Knob State Historic Site



Battle of Belmont, in Mississippi County

The historical marker for this site is located near Towosahgy State Historic Site (Stamp location: Hunter Dawson State Historic Site)



focus on fossils

Regular Echinoid

Regular Echinoids comprise a group of echinoderm spiny-skinned, marine, invertebrate animals having rigid, protective shells composed of numerous, tightly joined ossicles (spine-bearing pieces). They include sea urchins and pencil urchins that have protective shells with the mouth centered on the bottom.

Regular echinoids are well represented in the oceans of today. Their fossil record dates back to Paleozoic Ordovician time (450 million years ago). One group of regulars, the Cidaroida, survived the mass extinction event at the end of Paleozoic time (250 million years ago), and it gave rise to the many different kinds of echinoids that exist today.

Regular echinoids are bottom dwellers at ocean depths ranging from intertidal (between the low-water and high-water mark) to abyssal (immeasurable). They prefer a firm surface on which they slowly wander around using their spines, like walking on stilts. Echinoids living in intertidal and wave surf settings have thick, club-like spines that keep them from being rolled or swept along by currents. Some of them cling to and climb sea cliffs using their suction cup and prehensile tube feet. Other regulars reside in rock cavities, anchoring themselves inside with extended, suction-cup tube feet and making the cavity larger as they grow by abrading the cavity with their spines.

The echinoid mouth is equipped with a powerful, five-sided jaw apparatus called Aristotle's lantern. Vegetarian regulars use it to consume seaweed. Carnivorous regulars use it to prey on a variety of invertebrates, including those having shells. Starfish are known to prey on echinoids.

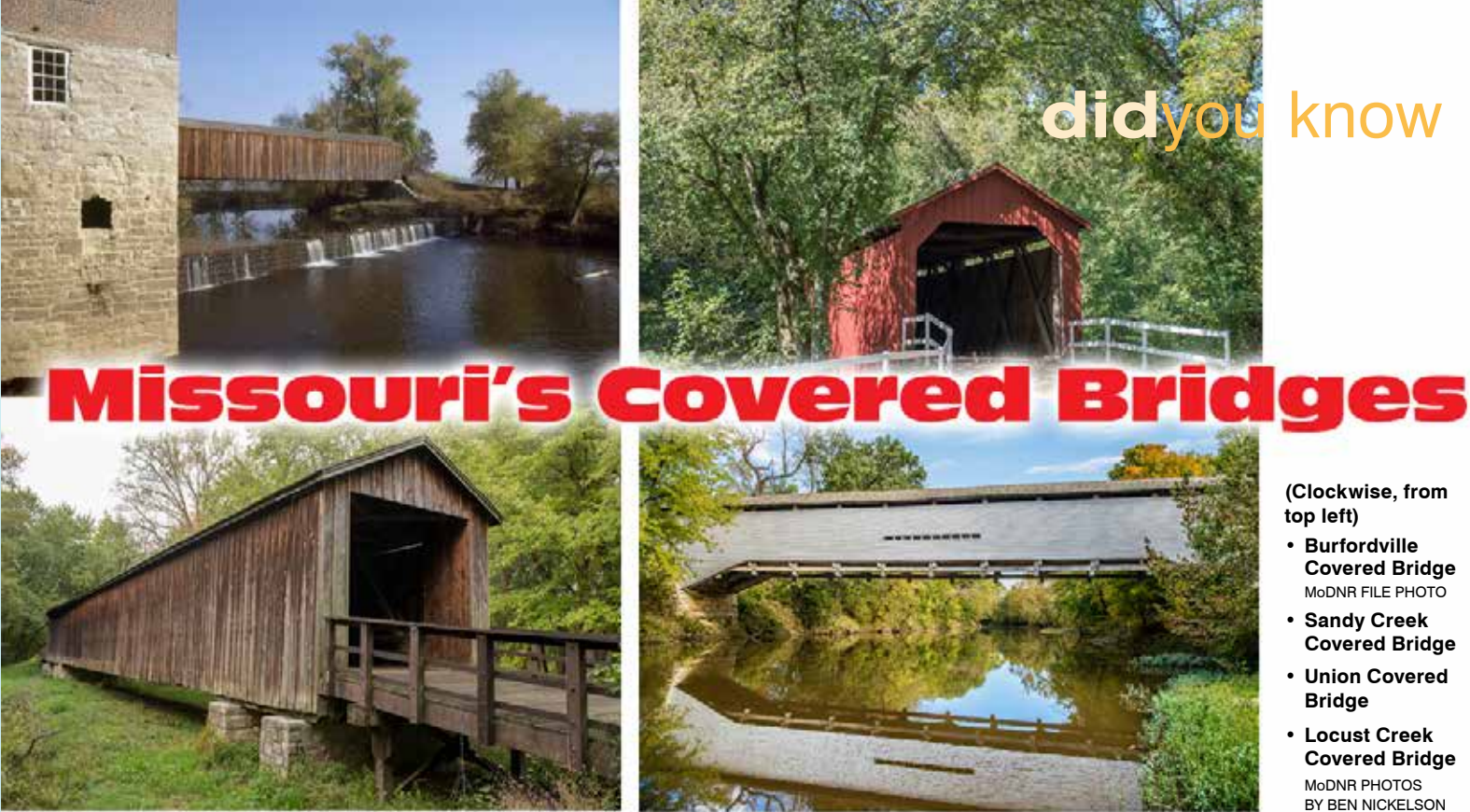
In Missouri, fossils of regular echinoids have been found in Paleozoic rocks of Ordovician, Silurian, Devonian and Carboniferous age (488 through 299 million years ago). Individual spines and individual ossicles are the typical finds while fossils of whole echinoids are rare.



(Top) Pictured is a flattened, globe-like shell and spines of an extinct, regular echinoid *Archaeocidaris illinoiensis* on piece of Carboniferous Mississippian (340-million-year-old) St. Louis Limestone at St. Louis, Mo. The shell is 0.8 inches in diameter. Both specimens are on display in the Ed Clark Museum of Missouri Geology at the Missouri Geological Survey, located at 111 Fairgrounds Road, Rolla.

(Above) This is a partially preserved, extinct, regular echinoid *Oligoporus mutatus* from Carboniferous Mississippian (340-million-year-old) limestone secured from an unknown location. This 4-inch diameter, globe-like specimen is laying on its side with the mouth on the left side. The numerous spines it had during life are missing.

MoDNR PHOTOS BY BEN NICKELSON



(Clockwise, from top left)
• **Burfordville Covered Bridge**
MoDNR FILE PHOTO
• **Sandy Creek Covered Bridge**
• **Union Covered Bridge**
• **Locust Creek Covered Bridge**
MoDNR PHOTOS
BY BEN NICKELSON

Missouri's surviving covered bridges serve as a reminder of simpler times, when journeys down life's road, or any road, were taken at a slower pace. An estimated 30 covered bridges spanned Missouri's rivers and creeks from the 1820s to the end of the century. Although there were many advantages to the shelter provided by the roof and sides, the main purpose was to protect the structural network of trusses from the weather. The roof also minimized damage to the decks. Buggy and carriage riders often used the bridges as shelters from inclement weather.

In 1967, the state legislature authorized the Missouri State Park Board to take possession of the remaining bridges in order to repair and preserve them. At the time, five covered bridges remained, but the 141-ft.-long Mexico Road Covered Bridge in Monroe County was destroyed in a flood later that year. Today, the four remaining historic wooden covered bridges in Missouri are state historic sites and under Department of Natural Resources protection.

Burfordville Covered Bridge is one of these covered bridges that survives today and is the oldest remaining. Joseph Lansmon began its construction in 1858, but it is unclear if the bridge was completed before or after the Civil War. After the war, the bridge became a vital link, especially to farmers driving wagonloads of grain destined for the adjacent Bollinger Mill. The bridge exhibits Howe-truss construction, named for William Howe, who patented the design in 1840. The essential feature of the design was its use of vertical iron rods to draw the diagonal wooden members tight against the truss. Burfordville Covered Bridge spans the Whitewater River in Cape Girardeau County and is 140 feet long. In 1967, the Cape Girardeau

County Historical Society donated Burfordville Covered Bridge and the adjacent Bollinger Mill to the state. The bridge is part of Bollinger Mill State Historic Site.

Locust Creek Covered Bridge, built in 1868, became a link in one of the nation's earliest transcontinental roads. Today, it is the longest of Missouri's four remaining covered bridges measuring 151 feet. The bridge was built using the Howe-truss system. Located 3 miles west of Laclede, in Linn County, the bridge is typical of the covered bridge movement of the 1800s, utilizing forested areas that could supply all the wood required thereby reducing costs.

Union Covered Bridge, built in 1871, is the only one of the four remaining covered bridges that represents the Burr-arch truss design. The Mexico Road Covered Bridge also was a Burr-arch truss. Invented by Theodore Burr in 1804, his namesake arch-truss required that the arch should be capable of bearing the entire load on the bridge while the truss kept the bridge rigid. Both bridges served Monroe County for many years, and both spanned the Elk Fork of the Salt River. Union Covered Bridge is 125 feet long.

Sandy Creek Covered Bridge was built at a cost of \$2,000 and was one of six post-Civil War construction project bridges built in 1872 to allow passage from Jefferson County to St. Louis. The 75-ft.-long bridge uses the Howe-truss design and has been in use since it was built. In 1886, high waters destroyed the structure but it was rebuilt for the tidy sum of \$899 using half of the original timber salvaged downstream.

Visit mostateparks.com to learn more about these historic treasures, and consider them for your future travel plans.

Michelle Diedrieck

National Register and Survey Coordinator

Missouri Department of Natural Resources
State Historic Preservation Office

Please introduce yourself and tell us how long you’ve been working for the Department of Natural Resources.

My name is Michelle Diedrieck. I work for the State Historic Preservation Office and I have been here 12 years.

Explain where you work and describe your typical day-to-day job duties.

I work at the Department’s central offices in Jefferson City. On a day-to-day basis, as a survey coordinator, I review National Register nominations and incoming architectural survey materials. We assist communities with their preservation needs and provide training on occasion. I work with the National Register of Historic Places, which is a federal list of historic resources. I also supervise two very dedicated and committed employees.

What do you like most about working at MoDNR?

We work with communities that are interested in nominating their historic resources to the National Register, or we assist them in identifying their historic resources. I like working here because it provides an opportunity to work with communities to honor and preserve those historic resources and I also really enjoy working with this team. They’re very passionate about historic resources and preservation, so it’s really great to come in every day to work with a group of coworkers that’s like-minded.

How do you feel that your job helps to enhance Missouri’s cultural and historical resources?

We work with programs that are tools for communities. You know, it’s not the be-all end-all of historic preservation, but they are tools that can help a community



DR. STEVE HOFFMAN PHOTO

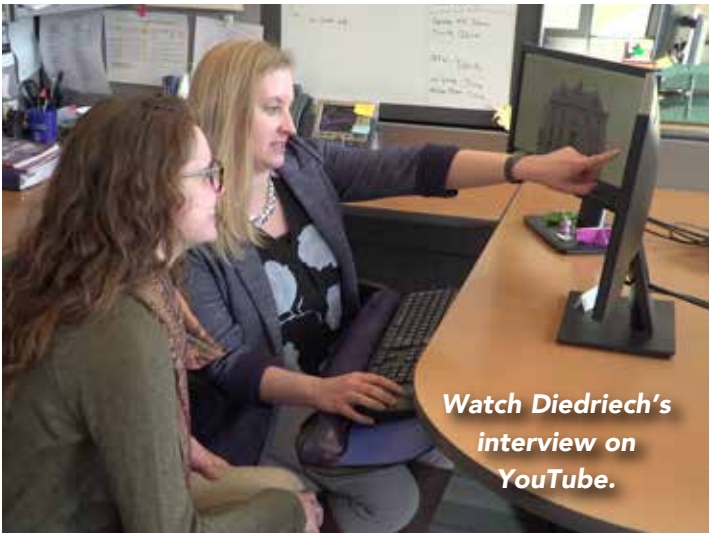
preserve their historic resources, and maybe use that to encourage economic development.

What would you tell someone thinking about a career with MoDNR?

I think it presents an opportunity to actually make real change – that’s a very beneficial part. And it’s an opportunity to come in every day and work on something new. It can be challenging but it’s not boring – it’s something different every day. You’re doing good and having an impact on the state’s historic legacy. I think that’s the best part of this position.

Is there anything else you would like to add?

There are some seasonal opportunities and internships occasionally, so if somebody was interested I would recommend just checking with our office. I would also recommend they see what they can do in their community – volunteer with the local Historic Society or see if there is a local commission that they could sit in on. It’s a very interesting position. We work on what you would consider the big Victorian buildings and we’re also involved with little African-American cemeteries and churches – it’s something new every day!



(Top) Michelle Diedrieck gives a presentation on completing the National Register nomination at Southeast Missouri State University.

(Above) The team at the MoDNR State Historic Preservation Office works with communities to provide training and help identify historic resources in their area.

(Left) The State Historic Preservation Office keeps records on architectural surveys for documentation and review.

MoDNR PHOTOS BY ANDREW RICHMOND



RAGTIME HAS ROOTS

at Scott Joplin House State Historic Site

by Andrew Richmond
photographs by Ben Nickelson

In 1973, Robert Redford and Paul Newman starred in the hugely successful caper film, *The Sting*, which won seven Academy Awards. The theme song to the film is easily recognizable – iconic, even – and has roots in St. Louis. In a modest flat on Delmar Boulevard from 1900-1903, Scott Joplin, “The King of Ragtime,” wrote *The Entertainer* and other well-known works.

Scott Joplin exhibited musical talent at an early age. Some would say he was a prodigy. By age 11, he was able to play several instruments as well as compose and improvise his own music. After a transient period where he plied his musical trade in railroad towns and riverfront cities, he established roots in Sedalia where he completed a degree in music at the George R. Smith College for Negroes. On the success of his first well-known published work, *The Maple Leaf Rag*, Joplin moved to a flat at 2658A Morgan St. (now Delmar



The visitor’s center at Scott Joplin House educates guests about Joplin’s life and work, as well as the St. Louis neighborhood where Joplin briefly lived around the turn of the century.



(Above left) The second floor of the Scott Joplin home is decorated in unpretentious turn-of-the-century style, with a nod to the former tenant.
(Above right) In front of the visitor’s center, an art installation for “Cakeway to the West” depicts Scott Joplin’s role in St. Louis’s quarter-millennium history.



“One hundred years after his death we are still listening and playing Joplin’s music throughout the world. Missouri, and especially Sedalia and St. Louis, are a part of that legacy.” – Almetta Jordan, historic site administrator

Boulevard) in St. Louis, where he wrote works such as *Elite Syncopations*, *March Majestic*, *Ragtime Dance*, and *The Entertainer*.
In 1976, Joplin’s St. Louis home was placed on the National Register of Historic Places, and in 1983 the property was donated to the Department of Natural Resources’ Division of Missouri State Parks. It is the state’s first historic site dedicated wholly to the presentation of African-American contributions to Missouri’s cultural history.

“Scott Joplin House educates the public on the contributions of African-Americans by providing educational programs on all aspects of culture with the emphasis being on music, this neighborhood and this city, St. Louis,” said historic site administrator Almetta Jordan.

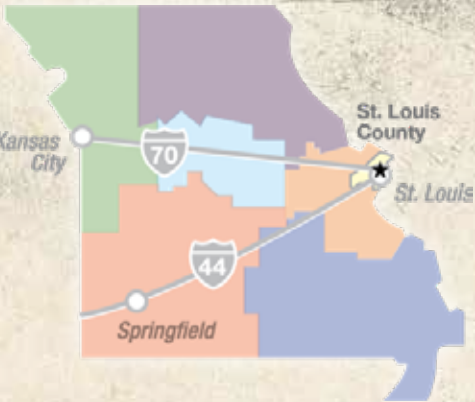
While not many details of Joplin’s life at the site are known today, the second floor of the home, where he and his wife lived, has been furnished unpretentiously in turn-of-the-century style. The visitor center downstairs depicts St. Louis and the neighborhood as Joplin knew it, as well as details about his life and work.

A player piano in the music room allows visitors to listen to piano rolls from the ragtime era, some of which were cut by Joplin himself.

“One hundred years after his death we are still listening and playing Joplin’s music throughout the world. Missouri, and especially Sedalia and St. Louis, are a part of that legacy,” said Jordan.

Scott Joplin House is open for tours every hour from 10 a.m. to 4 p.m., Monday through Saturday from March through October, and Tuesday through Saturday in February. The site is closed for the winter months, November through January.

Andrew Richmond is assistant editor of Missouri Resources and serves as the department’s videographer.



Music student **Royce Martin** played ragtime tunes for guests and gave an interpretive presentation about Joplin’s musical influences in summer 2018. Watch a video of Royce playing *The Entertainer* on YouTube!



This flat at 2658A Delmar Blvd., St. Louis, is where Scott Joplin wrote some of his most famous musical pieces.



(Above) The piano room hosts a collection of ragtime player piano rolls, which guests can listen to on the in-house player piano.
(Above right) The visitor’s center features exhibits on Joplin, some of which include artifacts connected to his life and work.



Top Spots to Dine

in Missouri State Parks

The natural beauty and outdoor activities in Missouri State Parks set the stage for hearty appetites, and dining opportunities in 13 state parks will fill every need. These range from full-course meals at dining lodges to convenient grills and snack bars. Some parks even offer buffets for special holidays.

Come to Sam A. Baker State Park and see the new Mudlick Mountain Grill, adjacent to the park store. Enjoy breakfast, lunch or dinner at this delicious grill and order burgers, sandwiches, ice cream, snacks, as well as pizza, which is baked fresh to order or take your food to go.

Looking for something a little more exquisite? Echo Bluff State Park offers the

Creekside Grill featuring classic American cuisine with an elegant flair. Dine indoors or out; either way sit back and enjoy the view.

Just got off the lake? Pomme de Terre State Park’s marina store has a snack bar like none other serving burgers, catfish, tenderloins and hand-dipped ice cream.

No matter your dining needs, Missouri State Parks has you covered. Go to mostateparks.com/activity/dining to find food or an event near you!





Eat at dining lodges, *convenient grills* or snack bars.



Catfish, tenderloins and **American Cuisine.**



Burgers, sandwiches, snacks, pizza and *ice cream.*



Dining available in **13** state parks.





Breakfast, lunch or dinner.



Hearty appetites and *dining* opportunities.

There are many delicious entrees at the J. Huston Tavern and Restaurant at Arrow Rock State Park – but the fried chicken is simply superb.
MoDNR PHOTO BY ANDREW RICHMOND



(Above) Echo Bluff State Park’s Creekside Grill features classic sandwiches like the Catfish Po’ Boy, and entrees such as the Ozark Forest Mushroom Strudel. Dine inside or out with an incredible view. (Below) A close-up of the top photo shows the popular Tri-Tip smoked sirloin sandwich.

MoDNR PHOTOS BY BEN NICKELSON



(Above) Bennett Spring State Park’s circa 1930s dining lodge serves full-course meals or lighter fare. If you snag a trout – they’ll cook it for you! (Below) At Arrow Rock’s J. Huston Tavern and Restaurant, ice cream is one great way to top off your meal – assuming there is any room for dessert.

MoDNR PHOTOS BY ANDREW RICHMOND



After-Hours Lantern Tour at Cathedral Cave

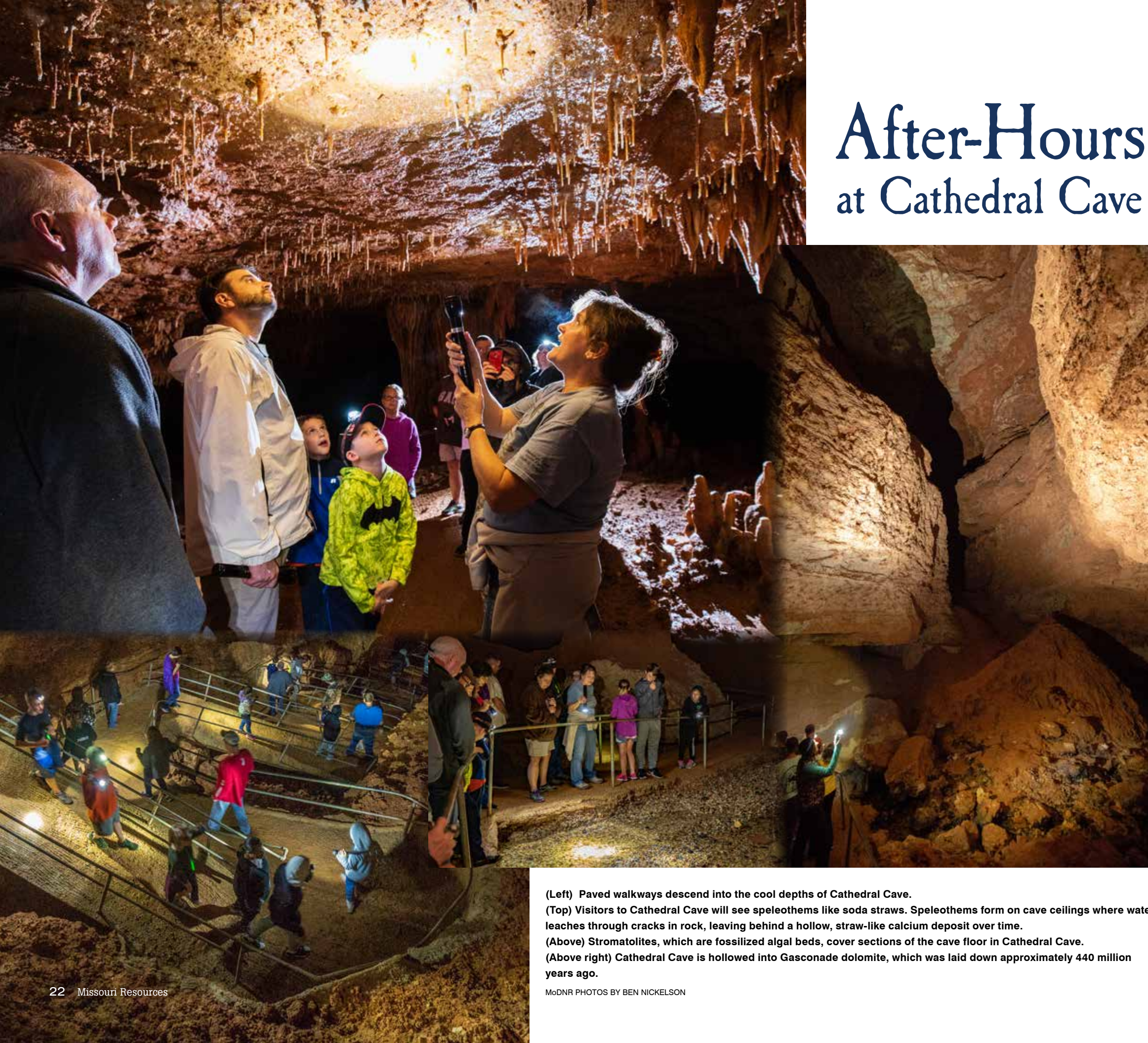
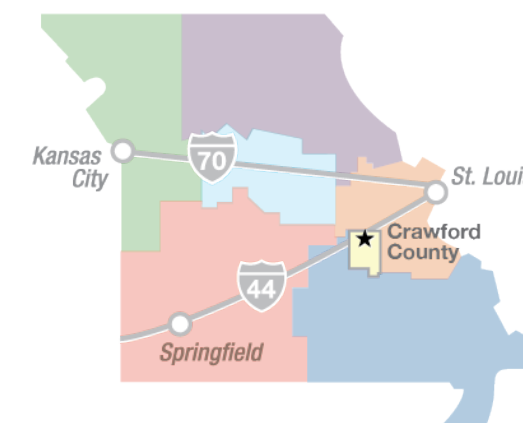
Even if you have gone on the Cathedral Cave tour at Onondaga Cave State Park, there is something about going on this tour in the dark that brings out the inner adventurer. With nothing but your flashlight, the tour starts at the Deer Run Trail with a one-third-mile walk to the cave's entrance. The woods block out most of the moonlight and your senses heighten as you hear every snap of a tree branch stepped on, or the crunching of leaves as an unknown creature scurries off. Your night vision kicks into gear as you bravely ascend to the cave's majestic entrance.

Once inside Cathedral Cave, your tour guide will point out unique cave features like the soda straws, stromatolites – which are fossilized algal beds – and wind-bent stalactites. The cave is rich with history, from its discovery, to using the cave as an underground earthquake monitoring station.

Experience the complete and utter darkness that Fair and Everett Pinnell experienced as they crawled on their bellies to get to the Cathedral Bell. Wonder at the vast unknown that was just at their fingertips.

This special After-Hours Cathedral Cave Tour is thanks to the Onondaga Friends Association, a partner of Missouri State Parks. The friends group hosts this tour and special off-trail cave tours for the public. Onondaga Friends Association strives to raise awareness, provide education and increase appreciation of the park's caves and the unique surrounding ecological environment at Onondaga Cave State Park.

For information about cave tours at Onondaga State Park, go to mostateparks.com.



(Left) Paved walkways descend into the cool depths of Cathedral Cave.
(Top) Visitors to Cathedral Cave will see speleothems like soda straws. Speleothems form on cave ceilings where water leaches through cracks in rock, leaving behind a hollow, straw-like calcium deposit over time.
(Above) Stromatolites, which are fossilized algal beds, cover sections of the cave floor in Cathedral Cave.
(Above right) Cathedral Cave is hollowed into Gasconade dolomite, which was laid down approximately 440 million years ago.

MoDNR PHOTOS BY BEN NICKELSON

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McCracken Core Library and Research Center Thirty-Year Celebration

by Lisa Lori

The Department of Natural Resources' Missouri Geological Survey is celebrating the 30th anniversary of the opening of McCracken Core Library and Research Center on April 25, 2019. Workshops, exhibits and presentations will run from 9:30 a.m. to 3 p.m. The event is free and open to the public. The center is located at 1 Research Drive in Rolla.

Named in honor of staff geologists Earl and Mary McCracken, whose service spanned more than three decades, the 21,000-square-foot facility houses more than 8 million feet of rock cores and cuttings. With an estimated replacement value of more than \$180 million, the center is one of the largest public repositories of its kind in the United States.

The center often is used by industry, academia, government representatives and the public to access information about the subsurface without the need to drill new and costly boreholes. This saves millions of dollars in research and exploration costs each year.

"Over the years, the U.S. Geological Survey has benefited greatly by being able to access samples from areas that are covered by thick sequences of overburden that were otherwise unobtainable," said Warren Day, a geologist at the USGS. "The drill core library preserves irreplaceable rock and drill core samples that inform our understanding of the geologic evolution and natural resources endowment of Missouri and the nation."

Learn more about McCracken Core Library and Research Center and see a list of holdings online at dnr.mo.gov/geology/geosrv/geores/mccracken.htm.

Lisa Lori is a geologist with the Missouri Geological Survey, a division of the Missouri Department of Natural Resources.



(Top) Staff geologists Fletcher Bone, John Corley and Lisa Lori examine core in one of the McCracken Core Library and Research Center's well-lit, climate-controlled viewing rooms. The viewing rooms accommodate as much as 400 feet of core at one time.

(Above) McCracken facility operator Patrick Scheel pulls and inspects a core sample. Scheel also is responsible for cataloging the new rock cores and cuttings at the expansive complex. He routinely retrieves the new samples when they are drilled and brings them to McCracken for the proper documentation required before they are stored.

MoDNR PHOTOS BY MARK GORDON



(Top) Kirsten Schaefer retrieves a box of core from the shelves of the McCracken Core Library and Research Center, as fellow geologists Tracey Mason and Fletcher Bone await their opportunity to examine the sample.

(Above) Missouri Geological Survey staff geologists, Fletcher Bone, Kyle Ganz, Tracey Mason, John Corley, Kirsten Schaefer and Lisa Lori work with Amber Steele, Geological Survey Program director in the main room of the McCracken Core Library and Research Center's 21,000-square-foot facility.

MoDNR PHOTOS BY MARK GORDON

Gillman named Geological Society of America Fellow

Joe Gillman, the department's Missouri Geological Survey director and state geologist, was elected a Geological Society of America Fellow at the 2018 Geological Society of America meeting in Indianapolis.

Members are nominated for fellowship in recognition of their distinguished contributions to the geosciences through such avenues as publications, applied research, teaching, administration of geological programs, contributing to the public awareness of geology, leadership of professional organizations and taking on editorial, bibliographic and library responsibilities.



Joe Gillman and GSA President Robbie R. Gries.

Gillman was nominated for having demonstrated strong, creative and visible leadership in the geosciences, positioning both the Missouri Geological Survey and GSA for growth and success. Joe is a past president of the Association of American State Geologists.

Headquartered in Boulder, Colo., GSA is a global professional society with a growing membership of more than 24,000 individuals in 115 countries. It provides access to elements that are essential to the professional growth of earth scientists at all levels of expertise and from all sectors: academic, government, business and industry. Learn about the Missouri Geological Survey online at dnr.mo.gov/geology/.

GEOLOGICAL SOCIETY OF AMERICA PHOTO

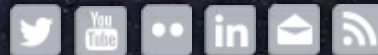
We Provide the Spots; You Provide the Shots!

Amateur photographers of all ages may enter the MissouriDNR Photo Contest. The contest offers you the opportunity to capture your favorite moments in Missouri's rich natural and cultural resources and share them for all to enjoy. The contest runs April 1 through Oct. 1, 2019. Winning photographs will be announced in the Winter 2020 issue of *Missouri Resources*, available online in mid-December 2019.

Learn more, visit dnr.mo.gov/photocontest.

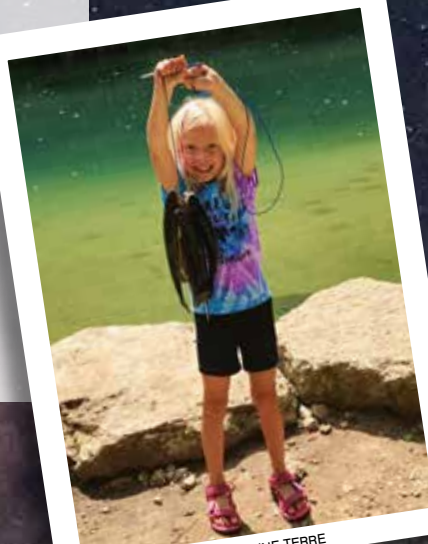


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ROXANNA CUMMINGS, BONNE TERRE



JANE LINDERS, MARYLAND HEIGHTS

